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## **High School**

### **Programming Fundamentals**

This course introduces students to the basics of computer programming. Students will practice math concepts in learning programming topics that include use of functions and control statements; object-oriented programming; and conditional and loop statements. The course uses the “drag and drop” Alice programming environment. Programming projects will exercise design creativity as well as the mathematics of logical thinking and problem solving by using objects in a virtual three-dimensional world.

### **Programming in Java**

Programming in Java is an introduction to computer science. The course emphasized good programming habits using the Java language and object-based program development. The first quarter focuses on the Java syntax and computer science concepts as well as on programming objects. The second quarter focuses on developing object interactions with an emphasis on larger projects. Topics covered include graphical user interaction (GUI's), file input/output, algorithms, and control structures. Dual credit may be available for those who qualify.

### **Honors Programming in Java**

Honors Programming in Java is an introduction to computer science. The course covers more advanced computer science topics such as data structures and manipulations, advanced algorithms, and modeling in addition to the concepts covered in Programming in Java. Topics covered include Java Syntax, Control Structure (conditionals, loops), Data Structures (primitives, references, & arrays), Objects – methods & fields, Object Interactions, Algorithms (sorting, randomization, formulas), and Graphics & Applet. Due credit may be available for those who qualify.

### **Computer Science - Principles**

This course is a self-study into the virtual machine and how it works. Covering both hardware and software concepts, the student explores and develops projects relating to high level languages, graphics, engineering simulations, and computer design.

### **Computer Science A**

AP Computer Science A covers basic programming topics such as input/output methodology, as well as decision, control, and iterating constructs using the Java language. In addition to object-oriented design, the foundational computer science data structures and algorithms are covered. Emphasis is on the methodology of writing professional-level programs. The goal of this course is to prepare for the Advanced Placement Computer Science A exam.

### **Introduction to Robotics**

This course provides a setting for learning and exercising problem solving and a pre-engineering laboratory for students preparing to study technical fields such as computer science or engineering in college. This course introduces science, math, and technology skills that allow students to design, build, and program robots to solve specific challenges. Students use Lego pieces for mechanical and structural tasks, a variety of digital and analog sensors, and the C-programming language in developing robot solutions. Students work in project teams to practice the communication process required for system design and integration.

## **Middle School**

### **8<sup>th</sup> Grade**

#### **Basic Computer Information/Review of Keyboarding**

Review how the computer operates and basic terms associated with technology that were covered in 6<sup>th</sup> and 7<sup>th</sup> grade. At the end of the week there is a short written review quiz over the material covered that week. Students will also review and practice their keyboarding skills on Typing Time. A series of time writings will be taken over the course of the quarter. If need be the review of keyboarding will be extended based on the skill level of each class.

#### **Word/Formatting Review/Reports**

Students will review how to navigate, create documents, edit documents and format in Microsoft Word. Students will also be introduced to formatting formal reports in MLA format. Students will have a written test over Word vocabulary, letters, etc.

#### **Excel**

Students will review entering data, formatting cells, writing formulas, creating charts, and inserting functions. We will do a series of activities that involve the different skills associated with Excel. Students will also have a written test that will cover vocabulary and interpreting a spreadsheet.

#### **Publisher**

Students will be introduced to Publisher and some of the features that Publisher has to offer.

#### **Web Design**

We will discuss what to consider when designing a Website. Students will use Wix to design and create a Website on the school appropriate topic of their choice.

#### **Power Point**

Students will learn the basics of how to create a PowerPoint presentation. Students will create a PowerPoint presentation.

### **7<sup>th</sup> Grade**

#### **Basic Computer Information/Review of Keyboarding**

Review how the computer operates and basic terms associated with technology. At the end of the week there is a short written review quiz over the material covered that week. Students will also review and practice their keyboarding skills on Typing Time. A series of time writing will be taken over the course of the quarter. If need to the review of keyboarding will be extended based on the skill level of each class.

#### **Word/Formatting Review/Reports**

Students will review how to navigate, create documents, edit documents and format in Microsoft Word. While learning these skills they will also create a personal business letter. This unit will be broken up into multiple tests.

### **Excel**

Students will review entering data, formatting cells, writing formulas, creating charts, and inserting functions. We will do a series of activities that involve the different skills associated with Excel. Students will also have a written test that will cover vocabulary and interpreting a spreadsheet.

### **Ethics/Copyright/Viruses/Internet Safety**

We will discuss different viruses and internet/security terms. Students will complete a series of activities on various websites. A multiple choice quiz will be given at the end of the unit over the vocabulary.

### **Power Point (2-5 days)**

Students will learn the basics of how to create a PowerPoint presentation. Students will create a PowerPoint presentation using their skills.

## **6<sup>th</sup> Grade**

### **Basic Computer Information**

Introduce how the computer operates and basic terms associated with technology. Computer Parts, the IPOS cycle, Hardware, Software, type of memory are all topics covered this first week. We also discuss Internet safety. At the end of the week there is a 40 question written test over the material covered that week.

### **Keyboarding/Touch Typing**

Students learn to touch type using the software program "Typing Time". This program allows students to learn to type using home row and touch typing. They do a series of 20 lessons in which they are learning the alphabetic key and being evaluated on the completion of the lessons. In addition they have the opportunity to learn the numbers, symbols, and number keypad. During the 7<sup>th</sup> or 8<sup>th</sup> week students should have completed all 20 lessons and will begin to be evaluated on their gross words a minute and accuracy scores.

### **Formatting and Graphics**

Using Microsoft Word students will complete a number of activities that will help them to become familiar with the toolbars, menus, and general word processing functions. In addition, students will have the opportunity to use WordArt, AutoShapes, ClipArt. Operation and correction keys will also be introduced during this time, with a 16 question matching quiz of the terms being given at the conclusion of the unit.

### **Hot Dog Stand - Entrepreneur Unit**

Students will begin this unit by discussing what is involved in running your own business and basic concepts associated with being an entrepreneur. The Hot Dog Stand software is a simulation in running your own business. Students will have to decide how much inventory to stock, what to price items based on weather and competition, and other decisions involved when running your own business.

## **Elementary**

### **Kindergarten - 5<sup>th</sup> grade**

At the Kindergarten – 5<sup>th</sup> grade levels, the technology emphasis is on helping young students learn to navigate the online environment, educational software programs and hardware. Internet safety is a strong emphasis.